

Laucks ⁸² years

Testing Laboratories, Inc.

940 South Harney St., Seattle, WA 98108 (206) 767-5060 FAX 767-5063

Chemistry, Microbiology, and Technical Services

CLIENT: Alaskan Copper Works
628 S. Hanford
Seattle, WA 98134

ATTN : Dale Olsen

Work ID : Fish Bio/TCLP Testing
Taken By : Client
Transported by: Hand Delivered
Type : Sludge

Certificate of Analysis

Work Order# : 91-02-047
DATE RECEIVED : 02/05/91
DATE OF REPORT: 02/21/91
CLIENT JOB ID : M18716

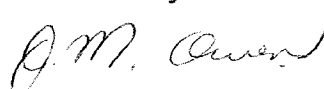
SAMPLE IDENTIFICATION:

	Sample	Description
01	Plasma Burn Table	
02	Acid Yard Sludge	
03	Method Blank	

The flag "U" indicates the analyte of interest was not detected, to the limit of detection indicated.

Unless otherwise instructed all samples will be discarded on 04/05/91

Respectfully submitted,
Laucks Testing Laboratories, Inc.


J. M. Owens

Charter Member American Council of Independent Laboratories

AKC-0014394

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TESTS PERFORMED AND RESULTS:

The 96 hour static fish bioassay was performed in accordance with Washington State Department of Ecology methods, with results attached.

96 HOUR STATIC FISH BIOASSAY

SAMPLE 1

Description of Waste: BLACK LIQUID WITH SOLIDS

Description of Test Set Up

The test was performed in triplicate at concentrations of 1000 ppm, 100 ppm, and 0 ppm in glass aquaria (8" x 10" x 14") containing 30 liters of tap water with a hardness of about 110 mg/L. Light was provided with fluorescent lamps for 18 hours per day. All test and control aquaria contained 10 organisms. The tanks were aerated during the first 24 hours of the test period only. The test was started on 2/11/91. The waste was added to the tanks directly.

Test Organism Information:

Species:	Pimephales promelas (fathead minnow)
Mean Weight:	0.82 grams
Mean Length:	5.8 cm
Longest:	6.1 cm
Shortest:	5.2 cm
Ratio (long/short):	1.2
Ratio of flesh to water:	0.27 grams/L
Source of test organisms:	Kurtz Fish Hatchery
Diseases observed:	None
Food used:	Wardley's dry flake food for large Cichlids
History:	Fish were acclimated at least 2 weeks prior to test.



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Chemistry, Microbiology, and Technical Services

Alaska Copper

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LABORATORY NO. 9102047

Observations of Effects or Symptoms:

None

Mortalities Observed in 30 test organisms:

	<u>Mortalities</u>	<u>%</u>
1,000 parts per million	1	3
100 parts per million	1	3
control	2	7

Water Chemistry Results: (mean +/- standard deviation)

	<u>1000 ppm</u>	<u>100 ppm</u>	<u>control</u>
Dissolved Oxygen, mg/L	7.7 +/- 0.9	7.9 +/- 0.8	7.8 +/- 1.0
pH	6.9 +/- 0.1	6.9 +/- 0.1	6.8 +/- 0.1
Temperature, degrees C	20. +/- 0.	20. +/- 0.	20. +/- 0.
Hardness, mg/L	158. +/- 31.	160. +/- 7.7	143. +/- 6.7
Alkalinity, mg/L	23. +/- 1.	20. +/- 0.	21. +/- 1.
Conductivity, micromhos/cm	360. +/- 87.6	352. +/- 10.8	326. +/- 30.1



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Alaska Copper

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LABORATORY NO. 9102047

Conclusions

Based on an evaluation of test mortalities (corrected for control mortality), this waste would be classified as undesignated waste.

Water Chemistry Test Methods

Dissolved Oxygen	SM*, part 421B
pH	SM, part 423
Total Hardness	SM, part 314B
Total Alkalinity	SM, part 403
Specific Conductance	SM, part 205

*SM = Standard Methods, 15th edition



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Chemistry, Microbiology, and Technical Services

REPORT ON SAMPLE: 9102047-02A
Client Sample ID: Acid Yard Sludge

Date Received : 02/05/91 Collection Date : N/A
Test Code : TCLP_M Date Extracted : 02/05/91

Extracted by the Toxic Characteristic Leaching Procedure (TCLP), Method 1311, Test Methods for Evaluating Solid Waste, U.S.E.P.A., 3rd edition. Metals were determined on the aqueous extract using either the EPA's 7000 series or EPA Method 6010 or a combination of both.

mg/L

Analyte	Result	MCL	SDL	Analysis Date
Silver	0.10 U	5.0	0.10	02/07/91
Barium	0.60	100.	0.10	02/07/91
Cadmium	0.010 U	1.0	0.01	02/08/91
Lead	0.10 U	5.0	0.10	02/07/91
Chromium	5.9	5.0	0.10	02/07/91
Selenium	0.20 U	1.0	0.20	02/07/91
Arsenic	0.20 U	5.0	0.20	02/07/91
Mercury	0.005 U	0.2	0.005	02/13/91

MCL = Maximum Contamination Level, as established by regulation.

SDL = Sample Detection Limit

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REPORT ON WORK ORDER 9102047 PREPARATION BLANKS

Test : Silver (Method 6010)
Blank Name : B0206ICP_T01 Preparation Date: 02/06/91
Conc Found : 0.100 U Control Limit : 0.200
Units : mg/L

This blank and comments, if any, apply to the following sample(s):
1

Test : Barium (Method 6010)
Blank Name : B0206ICP_T01 Preparation Date: 02/06/91
Conc Found : 0.200 Control Limit : 0.200
Units : mg/L

This blank and comments, if any, apply to the following sample(s):
1

Test : Cadmium (Method 6010)
Blank Name : B0206ICP_T01 Preparation Date: 02/06/91
Conc Found : 0.010 U Control Limit : 0.020
Units : mg/L

This blank and comments, if any, apply to the following sample(s):
1

Test : Chromium (Method 6010)
Blank Name : B0206ICP_T01 Preparation Date: 02/06/91
Conc Found : 0.100 U Control Limit : 0.200
Units : mg/L

This blank and comments, if any, apply to the following sample(s):
1

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Chemistry, Microbiology, and Technical Services

REPORT ON WORK ORDER 9102047 PREPARATION BLANKS

Test : Lead (Method 6010)
Blank Name : B0206ICP_T01 Preparation Date: 02/06/91
Conc Found : 0.100 U Control Limit : 0.200
Units : mg/L

This blank and comments, if any, apply to the following sample(s):
1

Test : Arsenic (Method 6010)
Blank Name : B0206ICP_T01 Preparation Date: 02/06/91
Conc Found : 0.200 U Control Limit : 0.400
Units : mg/L

This blank and comments, if any, apply to the following sample(s):
1

Test : Selenium (Method 6010)
Blank Name : B0206ICP_T01 Preparation Date: 02/06/91
Conc Found : 0.200 U Control Limit : 0.400
Units : mg/L

This blank and comments, if any, apply to the following sample(s):
1

Test : Mercury (Method 7470)
Blank Name : B0213HGW01 Preparation Date: 02/13/91
Conc Found : 0.005 U Control Limit : 0.010
Units : mg/L

This blank and comments, if any, apply to the following sample(s):
2

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